Cold fronts in clusters of galaxies: observations and modeling

Mergers of galaxy clusters -- some of the most energetic events in the Universe -- produce disturbances in hot intracluster medium, such as shocks and cold fronts, that can be used as tools to study the physics of galaxy clusters. Cold fronts may constrain viscosity and the structure and strength of the cluster magnetic fields. Combined with radio data, these observations also shed light on the production of ultrarelativistic particles that are known to coexist with the cluster thermal plasma. This talk will summarize the current X-ray observations of cluster mergers, as well as some recent radio data and high-resolution hydrodynamic simulations.